

NATIONAL WATER-QUALITY ASSESSMENT PROGRAM

Water Quality in the Piedmont – Blue Ridge and Valley and Ridge Aquifers

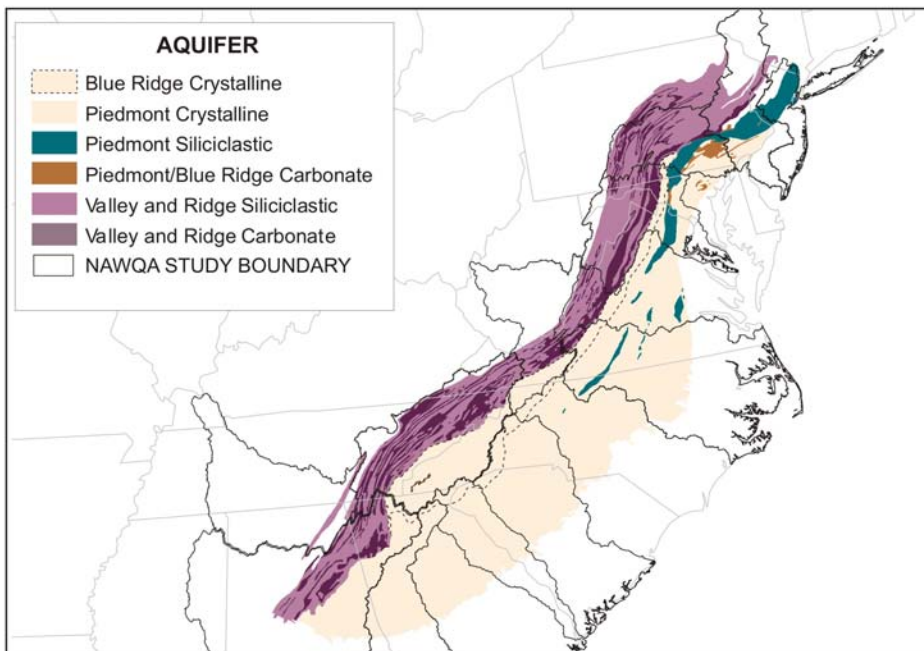
The National Water-Quality Assessment (NAWQA) Program is currently assessing the quality of water in principal aquifers across the Nation. The Piedmont-Blue Ridge and Valley and Ridge aquifers are part of this national program. These aquifers include areas of igneous and metamorphic (crystalline), limestone and dolomite (carbonate), and sandstone and shale (siliciclastic) rock types that span from New York to Alabama.

Goals of this regional study are to improve understanding of ground-water contamination and flow throughout the aquifers, how natural features and human activities affect water quality, and why some aquifers are more vulnerable to contamination than others. The information will help local, State, and

regional decision makers in source-water protection and management of this important drinking-water resource. Water use in the Piedmont-Blue Ridge and Valley and Ridge aquifers is about 670 million gallons per day.

Analyses are based on data collected from nearly 550 wells from 1993 to 2003. This large data set is unique in that the samples have been collected using a consistent sampling protocol and represent different parts of the aquifer system, including recently recharged shallow ground water and deeper ground water often used for domestic and public supply. Most wells have data for nutrients, major ions, pesticides, radon, and volatile organic compounds (VOCs).

Locations of aquifers in the Piedmont, Blue Ridge, and Valley and Ridge



Activities in Piedmont-Blue Ridge and Valley and Ridge aquifers

Topic	Timeframe	Aquifer/Location
Report: Factors affecting nitrate, pesticides, VOCs, and radon in ground water underlying selected areas in the Piedmont aquifer http://pubs.usgs.gov/sir/2006/5104	Completed; released in December 2006	Piedmont
Report: Nitrate and phosphorus in ground water and stream base flow. Key issues include: <ul style="list-style-type: none"> • occurrence of nitrate in ground water and implications for human health • sources of phosphorus, including from natural geologic sources • ground-water contributions of nitrate and phosphorus to streams • geochemical processes affecting the transport of phosphorus through groundwater to streams 	Ongoing	Piedmont-Blue Ridge and Valley and Ridge
Data Collection: In Central Piedmont Aquifer: <ul style="list-style-type: none"> • New data will be collected in summer and fall of 2007 to fill data gaps in the Piedmont Aquifer System in order to better understand the occurrence of anthropogenic and naturally occurring contaminants. Approximately 55 wells will be sampled for nutrients, major ions, pesticides VOCs, trace elements, radiochemicals, and microbiological contaminants in areas representing various lithologies and grades of metamorphic rock. 	2007-08	Piedmont – Virginia and North Carolina
Report: Pesticides and VOCs in the Valley and Ridge Aquifers	Scheduled to begin in 2008	Valley and Ridge
Report: Summary Circular: Report summarizing key findings and issues from all studies during Cycle I and Cycle II.	Proposed for completion in 2012	Piedmont-Blue Ridge and Valley and Ridge

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Study website: water.usgs.gov/nawqa/studies/praq/piedvr

The USGS is committed to making its unbiased scientific information available to interested parties, and promotes public access to its water information to help meet water-resource needs. External coordination is critical for a fully integrated understanding of aquifers and cost-effective management and protection of our ground-water resources. NAWQA, therefore, depends extensively on the information and input from other agencies and organizations. Assistance and suggestions are greatly appreciated.